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ABSTRACT

A longitudinal study was made of women and their first-born children who have different employment and day care experiences during the child's first three years of life. Specific aims of the study were (1) to gain full account of the history and experience of women who return to full-time employment while their first child is still young and of their children who receive non-parental day care from an early age; (2) to assess the consequences, in terms of the well-being of the woman and child, of full-time maternal employment and non-parental day care when both are initiated at an early age; and (3) to consider how far and in what ways these consequences are influenced by certain mediating factors, including the type and stability of non-parental day care, and the characteristics of the children, including gender and temperament. The study involved 255 women and their children. Four groups were compared: unemployed women not using day care and women who were employed full-time and who used relatives, childminders, or nurseries. Data were collected when children were 5, 10, 18, and 36 months of age. This paper reports and discusses data on socio-emotional development collected at the third contact during home visits involving multiple measures. (RH)

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Socio-emotional behaviour at 18 months, as a function of day care experience, gender and temperament.

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The influence of non-parental day care upon early child development has attracted a considerable amount of research attention. In recent years this body of research has been reviewed several times. Lamb (1982) in such a review noted that infants under 2 were the age range least studied, most studies being concerned with children over two years of age. The most common aspects of development to have been considered are cognitive development and socio-emotional development. Where socio-emotional development has been the focus of a study then the attachment to the mother has been most often considered, and this has usually been measured by some variation of the Ainsworth and Wittig (1969) Strange Situation procedure.

With regard to cognitive development, Belsky, Steinberg and Walker (1982) and Etaugh (1980) in reviews both conclude that non-parental day care does not produce detrimental effects on cognitive measures. Moreover there is some evidence that non-parental day care may enhance cognitive development for some children. Golden, Rosenblith, Grossi, Policare, Freeman and Brownlee (1978) found that infants from impoverished homes receiving group day care at a day care centre showed higher cognitive development scores at 18 months of age than children receiving individual day care or home care. These differences also occurred at 36 months of age. Also Ramey and Mills (1977) in one of the few truly experimental studies of day care have reported that children from high risk groups who do not receive non-parental day care showed lower scores on measures of cognitive development than children from similar home backgrounds who receive high quality centre day care. Whereas Schwarz et al (1981) compared children from impoverished homes who received low quality day care and found that the showed deficits of cognitive development as compared with children from similar homes cared for at home. So for cognitive development, the simple statements in many reviews may oversimply the relationship between day care and development.

Considering socio-emotional development Belsky et al (1982) conclude that non-parental day care is not associated with detrimental effects in socio-emotional development for young children. However, the evidence is not as straight forward as such a conclusion implies. Some studies e.g. Vaughn, Gove and Egeland (1980) do find differences in attachment behaviour associated with day care experience, and Rutter (1981) and Lamb (1982) both recognise and refer to the need for further clarification of the relationship between day care and socio-emotional development.

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This paper will be concerned with data on socio-emotional development shown by children at 18 months of age, where those children have had differing day care experiences. In considering the effects of an experiential factor such as day care on socio-emotional development, any effects of differential experience may well be mediated by the individual characteristics of the infants concerned. In particular temperament and gender may well be important mediating influences. Indeed Kagan (1982a) has argued that one aspect of socio-emotional development, attachment as measured in the Ainsworth and Wittig (1969) Strange Situation may reduce to temperamental differences. Hence this report considers the effects of day care experience, temperament and gender on socio-emotional development .

Method

The Study

The Day Care Project at the Thomas Coram Research Unit is a longitudinal study of women and their first-born children who have different employment and day care experiences during the child's first 3 years of life.

The aims of the study are:

a. to gain full accounts of the histories and experiences of women who return to full-time employment while their first child is still young and of their children who receive non-parental day care from an early age.

b. to assess the consequences in terms of the well being of the woman and child, of full-time maternal employment and non-parental day care where both are initiated at an early stage after birth.

c. to consider how far and in what ways these consequences are influenced by certain mediating factors, including the type and stability of non-parental day care, and the characteristics of the children including gender and temperament.

The Sample

The study involves 255 women and their children who have been selected according to the following criteria:

a. it is a two-parent family
b. it is the first child
c. the women were working full-time until the pregnancy
d. the women were born in the U.K. or Ireland
e. where the women are returning to full-time employment they do so before the child is nine months of age.

The sample is made up of four groups:

1. where women do not return to employment and do not use day care
2. where women return to full-time employment and use relatives
3. where women return to full-time employment and use childminders
4. where women return to full-time employment and use nurseries

Procedure

Data on the women and children in the study are collected at four contacts. These occur when the child is 5, 10, 18 and 36 months of age. This paper will deal with data collected at the third contact, when

the children are 18 months old. At this contact the home visits involved the following components:

1) a stranger approach/separation/reunion sequence
2) an interview with the mother
3) a child temperament questionnaire
4) a socio-emotional development questionnaire
5) a Bayley mental development index and infant behaviour record
6) a diary of one week, and child language record.

Appointments to visit the home were made for an appropriate time which was mutually convenient. On first meeting with the child the female researcher approached the child in a set sequence as follows:

APPROACH

Stage 1	Stranger talking to mother, brief glances to infant
Stage 2	Stranger looking at infant, not talking or smiling
Stage 3	Stranger looking at infant, talking and smiling
Stage 4	Stranger approaches infant
Stage 5	Stranger offer to pick up infant
Stage 6	Stranger picks up infant

SEPARATION
The mother is asked to leave the room for 2-3 minutes.

REUNION
The mother reenters the room.

At each stage of the approach sequence, the child's reactions were noted. At the end of the approach sequence the mother was asked to leave the room for 2-3 minutes. During this separation the child's behaviour was noted for signs of concern. After this brief separation the mother returned and the child's reactions upon reunion were noted. After this sequence the researcher proceeded with the interview and developmental assessment. The socio-emotional development questionnaire was also completed during this visit and instructions for the temperament questionnaire, diary and language record were covered before the end of the visit. The temperament questionnaire, diary and language record were left with the mother to complete during the following week.

The Bayley m.d.i. scale was conducted as described in the standard manual, and the infant behaviour record completed after the assessment. The temperament questionnaire used was the Toddler Temperament Questionnaire (Fullard, McDevitt and Carey 1979)

Results

This paper will deal with data on socio-emotional development for the children at 18 months of age. These data derive from

1) the stranger approach/separation/reunion sequence and
2) six items of the Infant Behaviour Record. The items selected being those which most obviously relate to socio-emotional development.

Using these data, the relationships between socio-emotional development and the child's experience of day care, temperament and gender were investigated.

The treatment of the variable of day care experience is not straightforward. At the beginning of the study there were four distinct groups, ie. the home group, the relative, childminder and nursery groups. However, as the study has progressed there has been considerable change in the day care arrangements of these groups. Hence it is necessary to take account of these changes in evaluating the effects of day care experience. The approach to be taken in this paper is to consider groups where there has been no change in type of day care arrangement from the time when the child was 9 months of age to the time when the child was 18 months of age. When the children were 9 months old the four study groups were as shown in table 1.

Table 1

Home	Relative	Childminder	Nursery
52	57	87	34

Total = 230

Selecting groups where there has been no change in day care arrangement between 9 and 18 months results in the groups shown in table 2.

Table 2

Home	Relative	Childminder	Nursery
44	25	69	28

Total = 166

The differences between the figures in table 1 and table 2 are explained by the changes in day care that occur over this period. The group which shows the greatest degree of change is the relative group. Some of the changes reflect changes in and out of day care, and some are changes between types of day care. For the analyses in this paper, the data derives from the subjects shown in table 2 where there have been no changes in type of day care from 9 to 18 months of age.

The temperament questionnaire used in this study produces 9 dimensions of temperament, which can be classified into categories reflecting ease of management. These categories are easy, intermediate easy, intermediate difficult, slow-to-warm up and difficult. For the purposes of the analyses in this paper the intermediate and slow-to-warm up categories were collapsed into 1 intermediate category resulting in 3 temperamental difficulty categories of easy, intermediate and difficult.

Approach/Separation/Reunion sequence

The data from this sequence were analyzed in 3 stages. Firstly the data on the child's behaviour during the stages of stranger approach were considered. Signs of approach to the stranger or pleasure were coded as positive signs and signs of withdrawal or displeasure were coded as negative signs. The total number of positive signs and the total number of negative signs during the approach were analyzed as dependant variables. The analysis was a 3 - way analysis of variance involving day care type, temperamental difficulty and gender as independent variables.

For the positive signs, the analysis of variance revealed a significant main effect due to day care type ($p < .007$) and for temperamental difficulty ($p < .04$). Neither gender alone nor any interactions were significant. The significant effects were due to the nursery group showing fewer positive signs than the other 3 groups and the difficult children show fewer positive signs than the easy or intermediate children. The means for the day care groups are shown in table 3. and the means for the temperamental difficulty categories shown in table 4.

Table 3: Means: Positive Signs to Stranger; Daycare Groups

Home	Relative	Childminder	Nursery
5.70	5.08	6.01	2.50

Table 4: Means: Positive Signs to Stranger; Temperament Groups

Easy	Intermediate	Difficult
4.9	5.9	3.7

For the negative signs, the same 3 - way analysis of variance reveals no significant differences due to any of the independent variables.

The effects due to day care experience reflect the nursery children showing fewer positive signs to the stranger than the children in the other groups.

The Separation:
The child's behaviour during the brief separation from the mother was coded in terms of the degree of concern or upset shown by the child. The data were grouped into 2 categories, where the children showed none or little concern and where the children showed marked concern.

The distribution of children for the 4 day care groups into these 2 categories is shown in table 5.

Table 5: Percentage Showing Concern at Separation

	Home	Relative	Childminder	Nursery
Little concern	86%	74%	59%	47%
Marked concern	14%	26%	41%	53%

The chi2 statistic reveals that the likelihood of a child showing marked concern increases across the 4 day care groups with the children in the home group being least concerned and the children in the nursery group being most likely to show marked concern ($p<.001$).

Paired comparisons between day care groups reveal that any pair of non-adjacent groups are significantly different.

This pattern in the data for behaviour at separation remains the same for boys and girls, and for each of the temperamental difficulty categories.

Considering temperamental difficulty on its own shows a significant relationship with response to separation. The distribution of children for the three levels of temperamental difficulty into the categories of little and marked concern are shown in table 6.

Table 6. Percentage Showing Concern at Separation

	Easy	Intermediate	Difficult
Little concern	76%	62%	50%
Marked concern	24%	38%	50%

The gamma statistic reveals a trend for the children to be increasingly likely to show marked concern as temperamental difficulty increases. ($p<.001$)

There are no differences between boys and girls in respomse upon separation.

Reunion

The child's behaviour upon reunion was rated into one of the following

1) Greets mother - shows pleasurable response, looking, smiling or vocalizing to mother.
2) Seeks proximity of the mother
3) Seeks contact with the mother
4) Infant is ambivalent, i.e. seeks contact while displaying displeasure or anger then squirms away.
5) Infant is avoidant, i.e. avoids looking at mother, turns away or moves away from the mother.
6) Other - describe.
7) No reaction - apparent indifference

These ratings were grouped with 3 summary categories.

Positive - showing pleasure on seeking proximity or contact; 1, 2 or 3
Neutral - indifference; 7
Negative - showing displeasure or ambivalence; 4 or 5

The great majority of children in the study were positive or neutral in their reactions upon reunion with few children showing negative reactions of ambivalence or avoidance. There were no significant differences due to day care group, temperamental difficulty or gender.

Infant Behavior Record

The first seven scales of the Infant Behavior Record particularly relate to socio-emotional behaviour. These scales are

1.Social orientation: responsiveness to persons
2.Social orientation: responsiveness to examiner
3.Social orientation: responsiveness to mother
4.Cooperativeness
5.Fearfulness
6.Tension
7.General emotional tone: degree of happiness

During pilot work, inter-observer reliability for the tension scale was not consistently high. Therefore the tension scale was not used in any of the analyses. For the remaining six scales, the ratings for the four day care groups were compared with the gamma statistic. Subsequently, ratings were analyzed similarly for the three temperamental difficulty categories, and for boys and girls.

For social orientation to persons, the nursery group tended to have lower scores than the children in the other day care groups ($p<.05$). This effect was present for all three temperament groups and for boys and girls.

For social orientation to the examiner, those children who were temperamentally difficult were rated lower than the children who were easy or intermediate ($p< .0005$). There was no relationship with day care group or gender.

For fearfulness ratings, girls tended to score more highly than boys ($p< .02$). There was no relationship with day care group or temperamental difficulty.

For the general emotional tone rating, there was a trend for the children to show lower ratings indicating less positive mood in moving from the home group through the relative and childminder groups to the nursery group. This trend was statistically significant ($p<.05$).

The scales social orientation to mother and cooperativeness did not reveal any relationship to day care group, temperamental difficulty or gender.

Discussion

The children who have experienced nursery care show less signs of pleasure when approached by a female stranger than the children in the other groups. However, they do not show more displeasure or upset. It is not the case that they appear more upset by the stranger, rather they seem less excited and show less positive signs of emotion. This relative indifference probably reflects the greater experience of a wide range of people that these children have as a consequence of their daycare experience. Those children who were temperamentally difficult also showed less positive signs to the stranger, presumably reflecting the individual child's habitual mode of response to new people.

When separated from the mother in the presence of the female stranger, there is a marked effect of day care experience. The home group seem least concerned, the relative group next most concerned, the child-minder group next and the nursery group show the most concern. These differences show a progression on a notional continuum of home individual care, through out of home individual care to out of home group care. Such a result should not be regarded as necessarily reflecting differences in the attachment of the children to their mothers. Indeed the behaviour of the children upon reunion was comparable for all groups and behaviour at reunion is generally regarded as the most important in the classification of attachment.

These results reflecting the effects of day care experience for the approach/separation/reunion sequence hold for both boys and girls and all categories of temperamental difficulty. Temperamental difficulty independently also affects the responses during the stranger approach and response upon separation from the mother.

The data from this study on the child's behaviour during the stranger approach/separation/reunion sequence should not be regarded as directly equivalent to that resulting from the Ainsworth and Wittig (1969) Strange Situation. The major difference between the procedures being that this study's procedure is conducted in the child's home whereas the Strange Situation is conducted in a laboratory. There are other differences in procedure also. However, the results of this procedure do indicate that day care experience does have distinct effects on the 18 month old child's behaviour toward a female stranger in the mother's presence. Also there are marked effects associated with day care experience when the mother leaves the child alone with a female stranger. The greater concern shown by children who have been receiving non-parental day care cannot be the result of some short-term adjustment to the experience of non-parental day care as these children have been receiving non-parental day care for at least nine months on a continuous basis. Such differences are not necessarily detriments, children will develop different patterns of behaviour which reflect their adaptation to their environment, and one pattern of adaptation cannot automatically be regarded as better than another. Indeed it is a characteristic of the literature in this area that it is overwhelmingly concerned with the issue of 'Is day care bad for children?' without much attention being directed to other effects which may not be best characterised on a good/bad dimension. Also there is a strong tendency for writers in this area to interpret any effect in value-laden terms without much consideration of the appropriateness of such interpretation.

The data from the infant behaviour record also point to the different socio-emotional behaviour of the children from the nursery group in that they were noted as showing less orientation to people and showing more negative mood. These findings are consistent with the pattern of results from the approach/separaration/reunion sequence.

Rutter (1981) noted that the relationship between out of home care and socio-emotional development clearly warrants further study. This viewpoint follows from the confusing pattern of research findings in this area. One aspect of the confusion in this area has been the neglect of the potential importance of the age of the child when entering non-parental day care. Vaughn et al. (1980) found that non-parental day care was associated with insecure infant-mother attachment when the day care started in the first year of life, but not when the day care started after the child's first birthday. The children in the study reported in this paper started non-parental day care usually around 7 months of age. All had entered non-parental day care by 9 months of age. The effects associated with day care experience in this study may well be related to this early start of non-parental day care. The effects of day care experience in this study are strongest for the nursery group who receive group day care and are substantially less for the relative and childminder groups who receive individual day care. Those studies which find no relationship between socio-emotional development and day care typically involve children who start non-parental day care considerably later, often when the children are in the second year of life. At such an age attachment to the mother will have become firmer and possibly this accounts for such age-related differences in the results of different studies.

The results show very little influence of child gender. However, there is evidence that with older children gender does interact with day care experience (Cochran and Robinson 1983). It is possible that as with other issues that effects involving gender will strengthen as children get older. Temperament has been treated in these analyses in terms of three categories of temperamental difficulty. Where temperamental difficulty effects emerge, on response to the stranger approach, and on the Infant Behavior Record rating of orientation to the examiner, the same aspect of behavior, reaction to a new individual is involved. In both cases the nature of the effect is that the difficult children have less positive reactions than the other children. The issue of whether difficult temperament is a within-the-child characteristic or a consequence of the parent's perception has been discussed by Thomas, Chess and Korn (1982), Kagan (1982b), Plomin (1982) and Rothbart (1982). The evidence produced in this study on the differential behavior of temperamentally difficult children derives from an independent observer and hence supports the view that difficult temperament is a within-the-child characteristic. The nine underlying dimensions produced by the Toddler Temperament Questionnaire are yet to be considered separately. Klein (1980) found that activity level was the best predictor of adjustment to group day care, with children 21 to 60 months of age. Perhaps analyses using these individual dimensions may reveal other influences of temperamental variables. As such developmental effects are likely to change as children develop then longitudinal studies offer the best source of data on such changing patterns, and future reports from this study will focus on such developmental patterns.

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